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South Central College

MECA 2235 Robotics

Course Outcome Summary

Course Information

Description

N Ì IÀÇÁÀÀÀÀÑÌ00ÁCEÀÁÓÍ ÁÀÀCÁ Í ÁÒCÀÀÑÌC Ì ÁC Ì ÁÀCEÁÌÒÇÌCE0ÀÀÁÁFÁCEÁÁÐÁÉD DIÒÐÁÉÒ Í ÁÇÁÒCÁÁ0ÁÁFÁ
D ÁCCÍÉÉÒÌÁÁÁÁÒÁÇÌÇÁÁÈÁÇÁÐÁÁÁÁÁ Í ÁÌÒÁÉÒÁÌÒ Í ÁÀCÁÌÉ0ÁÁÒÓÌÁÁÒÐÁÒC0ÁÑÌ ÁÁÁÇÁ Í ÁÒCÁÑÌ00ÁÐÉÌÒÁ
C Ì ÁÁÉÒÌ01CÈÁÇÁÁCEÁÁÐÁÉDÁHÁÖPÆÁQÁÒÁÇÁÁÉÒ Í ÁÁÁÇÁCEÁÉÒÁÉÁÇÁÐÉÇÁ Í ÁÁÁÒÁÇÌÇÁÑÁÁRÁÇÁ000Á
N Ì ÁÁÁÇÁ Í ÁÒCÁÑÌ00ÁÉ0ÁÁÁCEÁÁFÁÁÐÁFÁÒ Í ÉDÁÒCE0ÁÉÁÇÁÐÉÇÁ Í ÁÁÉÁÇÁÐÁÇÁÁÁÒ0ÁÁ Ì ÁÁÇÌÒÐÁ
CEÁÁÇÁ Í ÁÁÁÁ0ÁÑÁÇ Ì ÒÌÇÉ0ÁÑÁÇÌÒÐÁ

Learning Objectives

QÁÓIÁÑÁVÉÓÁÉÉFÁÇÉØ
YÁDÁÓÁÇÁÉÇÁÁVÉÓÁÉÉFÁÇÉØ
ÚÍÁÓÇIFÉÁÚÓÍÁÁÇÁIÉÓÁÉÉFÁÐÁÉÁÍÁÁÉÓÍÁYÁÉÁÍÍØÐÁÍÁÇÍÁÍÁØ
YÁDÁÓÁÇÁÉÇÁÇÍÁÇÉÁÁÇÉÁÁÁÁÁÁÁÁFÁVÁÇRÉBÁÇÁÑÉÐÉBÁÇØ
ÆÍÉÁÉÇÇÁÁIYÁÁQÁÍÁÓÍÉÓÇÁÉÉFÁÇÉÁÉÉÇÁDÁØ

2. Discuss basic robotic systems.

Learning Objectives

ÚÍÁÓÇIFÉÁÉÓÍÁQÁÇÁÐÓIYÁÁQÁÓÁÇIÇÁÉÇÉÇIFICÉCIÁÓÁØ
YÍÁÇÁÁÁÁÍÍFFÁÁÁÓÇÁÁÓÁÇNÁÁÓÁQÁÓÁÇÉÓÍÁÁÇÁDÉÇÁÍÁÍÉÇÍÍÓÁÁÉØ
PÓÇEÉIÓÁQÁÓÁÇÁÇEÁÁIFICÉCIÁÓÁØ
ÚÍÁÓÇIFÉÁZÉÁIÇÁÆÁDÇEÁÓÁÓÇÁØÁ
YÁFÍÓÁÁÇÁÁDÁÇÇADÁÓIÉÁÁÁÍÁÑICÍQÁÓÁÇIÇÁÑÁÇÍÓÁÓÁÐÉØÁ
ÚÍÁÓÇIFÉÁUÁÆÍÉÁÉÇÇÁÁIÇIÇÁÇÍÉÇÁÍÁÇÁÁDÍÓÁQÁÓÁÇÁÆIÉÁÁIFICÉCIÁÓÁØÁ
ÚÍÁÓÇIFÉÁQÁÓÁÇÁÆIÉÁÁIFICÉCIÁÓÁØÉÁÁDÁYÁADÁÇÁÉØÁ

3. Acquire an understanding of effectors and manipulation.

Learning Objectives

YÁFÍÓÁÁÉÓÁÁFFÁÇÇÁÁØÁ
YÁÇÁÁDÍÓÁÇÍÁÇNÁÁÓÉÁIÇÁÇÉÁÁÇÁÁÁÁFÁÁFFÁÇÇÁÁÁØÁ
YÁFÍÓÁÁÉÓÁÉÇÇÁÉÇÁÁØÁ
YÁÇÁIÓÁÁÑÍÉÇÁÇÉÇÁÁÁÁFÁÉÇÇÁÉÇIÁÓÁIÁÁÁÁÍÁIÓÁÁÓÁÇIÇÁØÁ
YÁFÍÓÁÁÍÁÐÁÁÁÁFÁFÁÁÁÍÁDÁSYBHØØ
PÓÉØÁÉÇÁÁÍÁÑÁÇÍÁÇÁÓÇÁÁØÉØÁÁYBHÁÇADÇEÁÁÁÇÁÇÍÁÇÁÇÉØÁYBHÁIÓÁÉÁÉÇÁDØÁ
YÁFÍÓÁÁÉÁÁÓÁÇIÇÁDÉÓIÇEÁØÉÇÁÁØÁ

4. Program a virtual work-cell using computer simulation software.

Learning Objectives

ÆÁÁÉÇÁÁÉÁÑÁÁRÉÇÁØØÁ
ÍÁÓÁÁÉÁÁÓÁÇÁIÓÁÚYØÁ
AÍXÁÇÁÇÍÁÁÍÁÇEØÉÉÇÁÇÁÇÁÉÇÁÁDÁÇCICEØÁÁÓIÁÑÁØÁ
PÍICÁÁÁÓÁÇÁÇEÁÁÇEÁÁÇIÁÁØÁ
YÁFÍÓÁÁÉÓÍÁÉÍÍÁÇEÉÁÇÁÇÁÉÁÑÁÁRÉÇÁØØÁ
ÆÁÁÉÇÁÁFÍÓÇÁÁÁÁÇÁÁÓÁÁÁÁÍÁIÓÁÉÁÑÁÁRÉÇÁØØÁ

5. Operate a robot using a teach pendant.

Learning Objectives

PÓÇEÉIÓÁÇÍÁÇÉÁÁÇÉÁÁÁÁÁÁFÁÇÍÁÑÁÉÇÍÁÉÁÓÍÉÓÇÁZÁÉÁØÁ
YÍFFÁÁÁÓÇIÉÇÁÁÓÁÇNÁÁÓÁÉÇÁÉÍCIÁÓÉØÁÇÉÇÍÁÇEÁÓÍÉÓÇÁÓÁØÁÇÍÁÁIÉÁÓÍÉÓÇÁ
ÚÍÁÓÇIFÉÁÇÍÁÁÁÁÉÁÁÓÁFÁÁÁÁÁICRÁÓÁØÁHÁØÁÍÁÓÁÁØÁ
PÓÇEÉIÓÁÇÍÁÁHÁØÇCIÁÓÁÍÁÓÁÁÉÓÍÁÇEÇÁÁÁÚÓÍIÇEÇÁÁÁÁÓÁÉÁÑÁÉÇÍÁÉÁÓÍÉÓÇÁ
PDCØÁÉÇÍÁÁÍFFÁÁÁÓÇÁYÁÉÍDÉØÁÉÑIÇIÇÁÇEÁÁIÇIÁÓÁÁÉÓÍÁÍÁÓÇIFÉÁÍÁÑÁÇÍÁÁÁÁÓÁÇÁÁÁÉÇÇÁØÁ

6. Demonstrate ability to Power Up and Jog a FANUC robot using the Teach Pendant.

Learning Objectives

PÓÇEÉIÓÁÇÍÁÁÇÁÇEÁÁÇÁÁÉÁÑÁÁÁPÇEÁÇÍÁÁQÁÓÁÇÁÁÉFÁØÉØ
PÓÇEÉIÓÁÍÁÑÁÇÁÁÁÇÁÓÁÁÁFÁÁDÁHÉÁØÇÁÁÉÓÍÁQÁÁÁÇÁYÆEÁHÉÁØÇÁØÁ
ÆÁÁÉÇÁÁÉÁÍÁFÍÓÁÍÁÉÁÁIÇIÁÓÁØÁ
PÓÇEÉIÓÁÇÍÁÁÇÁÇEÁÁÇÁÁBÚÓNÁVÁÐÁÉÓÍÁÁÁÇÁÇÍÁÁÇEÁÁÍØÁ
PÓÇEÉIÓÁÍÁÑÁÇÁÁÓIÁÑÁÁÁÓÁÇÁBÚÓNÁÇEÁÁIÇIÁÓÁØÁ
YÍÁÇEÉÉÁEÁFCNÉÁÁÁOÍÁÁVIDICÁØÁ
PÓÇEÉIÓÁÑÍÉÇÁÁIÓÍIÇEÇÁÍÓÉÉÁÍÁÇIÁÓÁVIDICÁPÁÁÁÁØÁ
YÁDÁÓÁÇÁÉÇÁÉØIØIÇEÇÁÁÉÇÇÁÁÁÇÍÁÁBÓÁÁÉÇÁÉÓÁQÁÁÉÁÁÉÇÇÁÁÁØÁ

7. Obtain basic knowledge about FANUC Robot Frames.

Learning Objectives

PÓÇEÉIÓÁÇÍÁÁÆÉÇÁÁIÉÓÁÆÁÁÍÍÓÉÇÁÉÉÇÁDØ

POCEDIOAN I ECIAADAEOCIOEAC I AACADAEIODAEICED
 YADAOACAECAA I ANACAAACAOAAAFADAEIEIODAEICIAAAA
 YAFIOA a BQVYAHEDAITNAOAHEDAITPEPQAHEDAITEO I AADAHEDAO
 YADAOACAECAA I ANACAAACANAOAHEDAITPEPQAHEDAITEO I AADAHEDAO
 YADAOACAECAA I ANACAAADAC I AAAOACAIONAOAHEDAITPEPQAHEDAITEO I AADAHEDAO
 YADAOACAECAA I OIAC I AAIAICIAODAOAO
 POCEDIOAN I ANAC I AAAOACAOACEICIAOAE I AAIAOCEICIAOIAADAEAAA I OA

8. Create, write and edit a FANUC robot program using a teach pendant.

Learning Objectives

POCEDIOAN I ECIAADAEOCIOEA I ACIAOAYAAACEAAEO I POCOA I AIAOAAO
 EIOAE I ACAAECAAECEAADED
 YADAOACAECAA I OIAC I ANACAAAEACEAADED
 YADAOACAECAA I ANACAAIOAAACAOEORAOIAAIOAECEAADED
 YADAOACAECAA I ANACAA I AACAAIOAAAFADAECEAADED
 YADAOACAECAA I ANACAAFI I ACEAADED I OACAAQCI OAAINIC I IOAECEAADED
 YADAOACAECAA I ANACAAAECEAC I CADAIIOAECEAADED
 YADAOACAECAA I OIAC I ACACACAEAECEAADED
 POCEDIOAN I ACACAEEO I ACEACAAACEICIAOAFAAACEAADED I OAAO
 YADAOACAECAA I OIAC I ACACAAAEADDOCAIQACECAIQADEARAE I APOLIAQADDEO I AO
 U I AO CIFEA I DAE I IOFAA DEICIAOFAAO I IOEAAADED I YPNALV
 YADAOACAECAA I ANACAAAEFAEACACAECEAADED I AAIODAIOD I AACAEAAACAOICIAAAAACAAICOD
 YADAOACAECAAC I AAAAFAPOCAO I ICIAOEAEO I AEAO I ICIAOEAZAEOC I IODAIACAAQCI OAO
 ACECEAUHAE I EPVPEANIOACAAQCI OAAAECEAADED
 PAA a AUNAIACAAQCI OAI OAECEAADED

9. Utilize Motion Instructions in a FANUC robot program.

Learning Objectives

POCEDIOAN I AA I IFFAAAOCA I ACIAOANNECAAAA I IOAEHAOPAECEAADED
 POCEDIOAN I AA I IFFAAAOCA I OADAOAC I ECA I AFIOAEADACIAOAI OACAAQCI OAO
 YAAQAI OAN I ECIAADAEOCIOEA I AAICIAOQADIACA
 YADAOACAECAAC I AAAAFAFAE I AAICIAOQADIACA I OAECEAADED
 POCEDIOAN I ANAC I AAAOACAAEA I IFFAACAC I AAAOACAECEAADED I ACEC I
 POCEDIOAN I AOACAAAEAE I IFFAAOACAA I DI OECACAECEAN I AO I AFIOI ODAEADACIAOAI OACAAQCI OAO
 POCEDIOAN I AOACAAECEOEADACIAOAECEICIAO
 YADAOACAECAA I ANACAE I IEO I AAOACADACIAOAI OACAAQCI OAO
 POCEDIOAN I ADADAOACAECAAC I AAAAFAFAE I AFIO I ACEAAICIAOAO
 YADAOACAECAA I ANACAAACA I AFAOACADACIAOAI OACAAQCI OAO
 YADAOACAECAA I ANACAAIOAAACADACIAOAI OACAAQCI OAO
 YADAOACAECAA I OIAC I ACACAC I ACEAEI OCAO
 POCEDIOAN I ANAE I AN I AOACAAAECEAA I AFIO I ACEAAICIAOAO
 YADAOACAECAAC I AAEECEICICIAOAFAC I ABHHEPNIEQADACIAOAECEICIAOAI OACAAQCI OAO
 POCEDIOAN I AAA I IACAOEOAAA AUOACAAQCI OAO

10. Explain the use of Inputs and Outputs.

Learning Objectives

BOCEDIOEAO I AAACEO I IODAFUW B AIDOEAO
 U I AO CIFEA I IFFAAOOCARIO I AAFAEAOCAAOAAUW B
 YAAQAI OAN I IFFAAOOCACEAAAF I EA I NEAAUW B
 POCEDIOAN I ANACAAQAOFI DA AUW B
 YAAQAI OAN DAI OCAI ODAEO I ACACAOAAAUW B
 YADAOACAECAAC I AAAACEAEEO I ECECEICICIAOAFAYAAAEAUW B

11. Describe the modification of System Variables and how they alter the Robot's configuration.

Learning Objectives

YAAQAI OAAEA CADAOEAI EOAAO
 AOCAAA EACADAOEAI EOAAO
 YADAOACAECAAC I AAEOIACAA I ACEEAAEACADAOEAI EOAAO

